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RAILROAD COMPETITION AND RATE MAKING: THE IMPLICATIONS FOR INDUSTRIAL COAL PRICES

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RAILROAD COMPETITION AND RATE MAKING: THE IMPLICATIONS FOR INDUSTRIAL COAL PRICES

1 INTRODUCTION

The U.S. Department of Energy's (DOE's) Office of Fossil Energy and Argonne National Laboratory (ANL) are interested in the industrial potential of advanced coal-using technologies. Because most coal is transported by rail and because transportation costs are a significant fraction (up to 75 percent) of delivered coal prices, the recent trend toward railroad deregulation is likely to affect industrial coal prices. This report examines various railroad issues, their potential effects on coal prices, and industrial decisions to convert to coal for steam production or feedstock uses.

Industrial facilities often do not require the volume of coal necessary to generate railroad operating efficiencies. Hence, they have difficulty obtaining lower unit train rates from rail carriers. The higher cost of delivered coal makes conversion less attractive. In addition, logistical problems associated with coal transportation are an inhibition to industrial coal use. The lack of adequate unloading and storage facilities, car supply and maintenance, and service reliability are problems which must be faced by industrial coal users.

As the railroad industry, which is the primary transportation mode for coal, enters the 1980s, two factors are significantly altering the way in which railroads do business, particularly in relationship to shippers who must rely solely on rail. The first factor, railroad deregulation, is embodied in the provisions of the Staggers Rail Act of 1980 (PL96-448). Among the provisions of importance to industrial coal users are:

- Rate-making flexibility and the zone-of-reasonableness concept.
- Market dominance and its impact on rate and service regulation.
- Railroad/shipper contracts for prices and service.
- Price and service discrimination among shoppers.
- Joint rate-making and rate bureau activities.
- Railroad entry and reciprocal switching.
- Railroad cost determinations.

The second factor affecting rail transportation for industrial coal users is the trend toward rail mergers and consolidations, in some cases due to financial problems. This trend, coupled with the willingness of government to allow major bankrupt carriers such as the Rock Island and the Milwaukee Road to be liquidated in whole or in part, is resulting in fewer railroads with increased market power.

In the sections which follow, we discuss in detail the impacts of railroad deregulation on industrial coal users; the effects of railroad consolidations on the bargaining power of coal producers, receivers and railroads; and finally, strategy and tactics for industrial coal users to maximize their leverage weight in obtaining efficient coal transportation at reasonable rates.

2 IMPACT OF THE STAGGERS RAIL ACT ON INDUSTRIAL COAL SHIPPERS

The Staggers Rail Act, passed in October of 1980, is an extension to the railroad industry of the trend toward deregulation of transportation. Specific cognizance of the poor financial health of the railroad industry resulted in a law that is generally considered an improvement for the railroads. A number of provisions grant the railroads increased control over their pricing and service. Because almost all coal mines and the majority of industrial facilities are served by only one railroad, the reduced rate and service regulation of the Staggers Act will often result in increased costs to coal shippers.

Other than some additional opportunities for reciprocal switching, entry to railroad markets is not made easier by the Staggers Act. Thus, the increased freedom of market entry, which has proven so important to airline and truck users in expanding service options and reducing prices, is missing from railroad deregulation. The expansion of overnight express freight service and reduction of trucking rates in major commodities, as well as the plethora of new companies in the airline and trucking businesses, are testimony to the importance of freedom of market entry to the consumers of bulk transportation services.

Clearly the Staggers Act is important in understanding the economics of industrial coal use. The cost advantages of coal, as compared to natural gas or oil, may be partially or wholly offset by higher railroad transportation prices. In the following subsections, we review each of the principal provisions of the Staggers Act as it affects industrial coal shippers, providing examples as appropriate.

2.1 RATE-MAKING FLEXIBILITY

Sections 10701a and 10707a of the Revised Interstate Commerce Act contain the new regulations on railroad rate standards and rate-making flexibility. The principal change affecting industrial coal consumers is that the Interstate Commerce Commission (ICC) no longer automatically assumes jurisdiction over railroad rates. Under the Staggers Act, it must first be determined by the ICC that "market dominance" exists. Market dominance, simply stated, is the lack of effective competition in holding down rates. The ICC is charged with specifying standards by which market dominance can be determined.

Without a finding of market dominance by the ICC, the railroads may set new rates at whatever "the market will bear." A number of coal-hauling railroads in both the East and the West have moved aggressively since passage of the Staggers Act to increase rates on coal shipments to electric utilities, quoting new rates based on an analysis of market conditions, rather than "cost plus return." Should a coal shipper be dissatisfied with the rates quoted, he may file a complaint with the ICC if:

1. The rate is established under the Staggers Act, post October 1, 1980 and
2. The revenue to variable-cost ratio of the rate is equal to or greater than the threshold percent established by the Act.

Thus, rates established prior to October 1, 1980, are assumed to be reasonable, unless they were challenged during a now-expired grace period. The limiting revenue to variable-cost ratio is extremely important because the ICC must find that it does not have jurisdiction over the freight rate at issue unless the shipper can demonstrate that the ratio is being exceeded. These levels are shown in Table 1. Thus, if a shipper cannot demonstrate that the revenue to variable-cost ratio of the coal movement is greater than the threshold, the ICC will not act to investigate unless discrimination among shippers can be demonstrated. Yet even if the ICC establishes that the revenue/variable cost percentage exceeds the threshold CRP, such a finding does not automatically establish the presumption that market dominance exists, or that the proposed rate exceeds a reasonable maximum.

Thus, the ICC might find that, although a single-car industrial coal movement had a rate whose revenue to variable cost percentage was 210 percent, market dominance did not exist and, therefore, the rate must be considered reasonable. An important point is that, regardless of the precise language of the Staggers Act, the burden of proof of rate unreasonableness has been effectively shifted to the shipper. The industrial coal shipper must therefore ensure that the transportation environment for his facilities is competitive, or face the prospect of extended proceedings before the ICC or the courts in an effort to prove market dominance exists and rates offered are unreasonable. Competitive access to transportation will avoid the legal, administrative and cost problems associated with rate regulation post-Staggers Act. In the next sections we discuss what constitutes competitive transportation access and some strategies to achieve it.

2.2 MARKET DOMINANCE

As discussed in the preceding section, a finding that a coal shipper (mine or receiver) is effectively "captive" to one railroad, known as market

Table 1 Revenue to Variable-Cost Ratios

Revenue/Variable Cost Ratio (%)	Effective Period
160	October 1, 1980 - September 30, 1981
165	October 1, 1981 - September 30, 1982
170	October 1, 1981 - September 30, 1983
175[a]	October 1, 1983 - September 30, 1984
CRP[b]	Annually beginning October 1, 1984

[a]Maximum of 175 percent or the cost-recovery percentage (CRP), whichever is less.

[b]CRP - Cost Recovery Percentage shall be determined by the ICC annually between 170 and 180 percent.

dominance, is a necessary condition for the regulation of coal rates established under the Staggers Act. The Congress left to the ICC the task of developing rules for determining market dominance, which the Commission undertook in a study referred to as Ex Parte 320. The Congress did specify that several considerations be included in market dominance rules, including:

1. Product competition may be considered in judging the existence of market dominance.

2. In order to be competitive, coals should be similar in Btu content, sulfur content, and ash content.

3. Imported coal should not be considered in product competition with respect to utility plants, but may be considered with respect to industrial plants.

In Ex Parte 320, the ICC eliminated the existing "rebuttable presumptions" used as guidelines to determine market dominance prior to the Staggers Act. These presumptions were that market dominance existed if:

1. Revenue to variable cost ratio exceeded 160 percent.

2. The proponent carrier handled more than 70 percent of the involved traffic in the preceeding year.

3. Affected shippers or consignees had made a substantial investment in rail-related equipment, which prevented or made impractical the use of another carrier or transportation mode.

In eliminating these presumptions, the Commission found that they were inconsistent with the Staggers Act, difficult to quantify, required an analysis of competitive conditions implicit in a market dominance proceeding, and were overly protective of shippers who made poor business decisions.

In promulgating its findings in Ex Parte 320 (in July, 1981), the Commission provided several new guidelines for the consideration of market dominance, but did not set rules or standards. Among the key guidelines relevant to industrial coal shippers are:

1. Coal shippers will not be adjudged captive to a rail carrier solely because of a long-term supply contract.

2. Similarly, the amount of rail-related investment, by itself, is a poor index of "captivity."

3. Geographic competition, the ability of a shipper to obtain the product from a different source and/or ship to a different destination, will be considered in determining market dominance.

4. Product competition, the ability of a shipper to substitute another product for that covered by the rail rate, will also be considered.

The ICC found that effective transportation can arise from several sources:

1. Carriers and modes serving the same origin/destination pair as that for the disputed rate.

2. Carriers or modes delivering the same product from the same origin to alternative destinations.

3. Carriers or modes delivering the same product to the same destination from alternative origins.

4. Carriers or modes delivering substitute products to the same destination, irrespective of origin.

The ICC has thus adopted a liberal interpretation of the situations available to a shipper that imply the presence of transportation competition. In effect, the ICC is focusing on the delivered cost of the goods or substitutes, whether at the facility under investigation or another facility, as the appropriate context for analysis of market dominance.

The implications of these guidelines on current and potential industrial coal shippers are substantial. Although there have been no coal decisions to date by the ICC under the Ex Parte 320 guidelines, it seems likely that coal shippers will now have a more difficult task in successfully demonstrating market dominance:

- Even if an industrial plant can obtain coal only via one railroad and has invested in rail-related coal facilities, the ICC may find that "intramodal competition" exists by virtue of alternative carriers that could originate competing coal supplies.

- Similarly, the ICC might find that an adjacent waterway or truck delivery constitutes competitive access to the plant, even though an additional investment may be required in order to utilize these options.

- In multiplant industrial firms, the commission may find that alternative fuel-use capabilities (gas and oil) and the ability to produce a product at various plants may be sufficient leverage to imply that competitive options exist.

- Supply contracts for coal, particularly those negotiated independently of, and prior to, rail transportation rates, will not be adequate evidence of market dominance. Industrial coal users will have to demonstrate railroad refusal to deal or negotiate in good faith or similar delaying tactics if the ICC is to be convinced that a supply contract negotiated independently of transportation rates represents an element of market dominance.

In summary, a determination of market dominance by the ICC will be less likely under the Ex Parte 320 guidelines than under the rebuttable presumptions previously used. Industrial coal shippers will bear an increased burden of proof if they desire coal rates to be constrained by the ICC, being forced to demonstrate not only a lack of intramodal competition, but also a lack of intermodal, product and geographic competition. As a result, federal rate regulation will likely be reduced in scope and frequency and industrial coal shippers, lacking the broad protection of the ICC, will have to increasingly use other leverage over the railroads. In particular, those industrial coal

users who commit to coal supply, boiler characteristics, or plant unloading facilities without known rail rates or transportation contracts, may find that their coal hauling costs escalate far in excess of what had been planned for. The passage of the Staggers Rail Act means that the ICC is less likely to protect industries from these business decisions.

2.3 ZONE OF RATE REASONABLENESS

Even in the cases where coal shippers have rates which are judged to be market dominant and subject to ICC regulation, the railroads are still provided with substantial rate flexibility. Thus, the ability of industrial coal shippers to exercise leverage over the railroads remains important if less than the maximum permissible rates are to be obtained.

The Staggers Act provides for a system of base rates and adjustments for cost escalations. Effective October 1st of 1980, 1982, 1984, and each five years thereafter, the rates in effect become base rates for purposes of regulation. During the period until the next base rate is established, the rates may be escalated in accordance with a quarterly rail-cost adjustment factor published by the ICC. The ICC can restrict such increases if the total rate exceeds a reasonable maximum or if general or inflation-based increases have already been applied to account for the cost escalations.

In addition to these increases, which will produce the adjusted base rate, the railroads may add up to 6 percent annually to a maximum of 118 percent of the adjusted base rate through 1984. In 1984 and thereafter, such increases are limited to 4 percent annually and do not apply to single-line rates of rail carriers earning adequate revenues.

Even if an industrial coal shipper does have regulated rail rates, it can still face significant annual escalations in its freight rates, due to cost escalations and discretionary rate increases, unless the ICC determines a maximum reasonable rate in the proceeding. In reality, industrial coal shippers must rely less on the ICC for transportation cost control and more on their own leverage if they are to avoid the rate escalations available to rail carriers in the Staggers Act.

2.4 CONTRACTS FOR RAIL TRANSPORTATION

One of the most significant changes affecting industrial coal shippers is the recent removal of restrictions against contracting between railroads and shippers. These changes affect not only those shippers who desire to contract, but also those who choose not to: a good understanding of the opportunities and exposures of rail contracts is essential for all industrial coal shippers.

Among the essential features of the Staggers Act relating to railroad-shipper contracts are:

- There is no limitation on what must or can be included in such agreements.

- The only ICC requirement is that certain "nonconfidential" data about the contract be filed according to special tariff rules.
- Complaints may be filed or investigations instituted in nonagricultural commodities only because:
  1. The proposed contract impairs the railroad's common carrier responsibilities or
  2. A port faces unreasonable discrimination as a result of the contract.
- The ICC must begin a proceeding, on its own initiative or by complaint, within 30 days of the filing date.
- Proceedings on rail contracts must be completed within 30 days of commencing.
- The ICC can approve a contract not earlier than 30 days following its filing nor later than 60 days following.
- Once a contract is approved by the ICC, it cannot be challenged under ICC regulations nor can the ICC compel a railroad to violate it.
- The appropriate forum for challenging ICC-approved contracts is in state or U.S. district courts.
- Pre-Staggers Act contracts are not affected by the new regulations.*
- Equipment in contract service is not subject to car service rules.
- ICC will establish a contract advisory service to:
  1. Compile and disseminate nonconfidential contract data,
  2. Provide advice to shippers and carriers, and
  3. Assess the impact of contracts on competition.

Perhaps more than any other provisions, the contract provisions of the Staggers Act have aroused the interest of coal and other bulk-commodity shippers. Because of the exemption of contracts from ICC rate and service regulation and the lack of a nondiscrimination provision, smaller shippers, such as industrial coal users, are concerned about their ability to gain fair treatment. Their concerns are heightened by the lack of public information about individual contract provisions, making it more difficult to demonstrate discrimination, even where they suspect it exists.

On the positive side, contracts offer the industrial coal shipper an opportunity to make transportation commitments simultaneously with boiler, coal supply, and transshipment facility commitments, reducing their exposure to freight rate and service changes. Contracts also provide the opportunity

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*The ICC shifted its policy toward encouraging rail contracts approximately one year before the Staggers Act was signed into law. The Act served to formalize Commission policy.

to stabilize railroad service and compensate the shipper when service failures increase costs.

Railroads and shippers alike are treading lightly on the possibilities for rail contracts for coal transportation because of the uncertainty of the commitments required and the difficulties in prescribing certain factors, such as cost escalations. Contracts force all parties to project results, not react to the environment, as is more the case in a highly regulated environment.

Industrial coal shippers will be required to become familiar with the details of the railroads' operations and costs if they are to be successful in contracting, since the ICC will not be available to protect their interests and the courts are not likely to sympathize with the shippers who make naive contract decisions. Industrial coal users must simultaneously balance combustor design options, coal supply options, transportation options, and plant siting and facilities options to identify the optimal combination and make use of maximum competitive leverage to reduce costs.

2.5 RATE DISCRIMINATION

While the Staggers Act exempted contracts from ICC oversight, it also relieved the railroads of some constraints on rate discrimination. Among the relief granted the carriers was:

- Differences in rates are not discriminatory if different services can be demonstrated.
- Rates offered via different routes between the same origin/destination pair are exempt from discrimination rules.
- Surcharges and rate cancellations are exempt from discrimination rules.

These provisions allow the carriers to set differential rates where previously the ICC could order that rates and service be equal. As an example, an industrial coal shipper might have two routes between his coal supply and his facility, each involving three carriers:

A - B - C
A - D - C

On a complaint of the shipper, the ICC, prior to the Staggers Act, might have equalized the rates via both routings, providing the shipper with two competing routings. Under the Staggers Act, however, the delivering carrier C may set its rates (i.e., divisions) for the two routes such that the route with the longest haul for carrier C turns out to have the lower total cost. Since the ICC could not act to equalize the rates via the two routings, the shipper would lose access to a second competitive routing and competition would be reduced. The application of surcharges or rate cancellations can have a similar effect.

2.6 JOINT RATES

The final area of our discussion of the Staggers Act is that of joint rates set when more than one railroad cooperates in a given shipment. The Act has placed road blocks in the development of such rates and made it easier for carriers to effectively eliminate existing joint rates. Both of these provisions may have the effect of reducing the number of routings and economic coal supply options available to the industrial coal shipper, thus increasing the market power of the delivering carrier.

The Staggers Act has resulted, in effect, in the elimination of the antitrust immunity of the railroad rate bureaus, the forums in which joint-line rail rates have historically been developed. While the Act did not eliminate the rate bureaus, their operations have been effectively eliminated by individual carriers who refuse to participate in such discussions, fearing antitrust prosecution. It will be more difficult to negotiate joint rates as a result and rail carriers can use the antitrust arguments to effectively favor single-line rates over joint-line rates.

The joint-rate surcharge and cancellation provisions of the Staggers Act make it possible for railroads to act against existing joint rates. Among the joint rate provisions on surcharges and cancellations are:

- Surcharges may be applied to joint-line movements in which the surcharging carrier's division results in:
  - A revenue-to-variable cost ratio less than 110 percent, or
  - Carrier revenues less than 100 percent of the cost of operating the rail line.
- Surcharges must be applied equally to all routes between the origin/destination points, both joint and single line.
- Carriers may surcharge different origin/estimation pairings in different amounts.
- Carriers with inadequate revenues, as defined by the ICC, may only apply surcharges to lines of 3 million gross tons or less annual volume.
- Carriers with adequate revenues may only apply surcharges to lines of 1 million gross tons or less annual volume.
- A rail carrier may cancel the application of a joint rate to a through routing, without other carrier or shipper concurrence, unless it is demonstrated to the ICC that there is no competitive alternative to the routing and:
  - The cancelling carrier's division was greater than or equal to 110 percent of its variable cost, or
  - A lesser revenue/variable cost over a competing route, joint or single line, was not cancelled.

For those coal shippers whose facilities or coal supply sources are located on branch lines experiencing less than 3 million gross tons of annual traffic, surcharge or cancellation of joint rates is possible, unless the

shipper can demonstrate that the carrier's division produces a revenue/variable cost ratio in excess of 110 percent. Because the ICC is setting new standards for calculating rail costs, it will behoove coal shippers to be knowledgeable of these costing procedures in order to protect themselves against unwarranted increases.

3 RAILROAD CONSOLIDATIONS AND THEIR IMPACT ON INDUSTRIAL COAL SHIPPERS

Simultaneously with the regulatory changes brought about by the Staggers Act, the railroad industry is undergoing a series of consolidations that will have a substantial impact on the balance of market power between shippers and carriers. Among the most important changes for industrial coal users are the formation of the following corporate entities:

- Conrail - Will likely shed several thousand miles of light density lines or be broken up and sold to other railroads

- CSX - The following railroads are now under unified corporate control:
  - Chesapeake & Ohio (C&O)
  - Baltimore & Maryland (B&O)
  - Western Maryland (WM)
  - Seaboard Coast Line (SCL)
  - Louisville & Nashville (L&N)
  - Clinchfield (CC&O)

- NWS - The following railroads have petitioned for merger and unified corporate control:
  - Norfolk & Western (N&W)
  - Southern Railway (SOU)
  - Norfolk, Franklin & Danville (NF&D)
  - Illinois Terminal (IT)
  - Central of Georgia (C of G)
  - Interstate Railroad (INT)

- Guilford - The following railroads have been proposed for unified corporate control:
  - Maine Central (MC)
  - Boston & Maine (B&M)
  - Delaware & Hudson (D&H)

- GTW - The following railroads are now under unified management:
  - Grand Trunk Western (GTW)
  - Central Vermont (CV)
  - Duluth, Winnipeg & Pacific (DW&P)
  - Detroit and Toledo Shore Line (DTSL)
  - Detroit, Toledo & Ironton (DT&I)

- BN - The Burlington Northern recently completed a merger with the St. Louis-San Francisco Railway (Frisco)

- UP - The following railroads propose to merge and operate under unified management:
  - Union Pacific (UP)
  - Missouri Pacific (MP)
  - Western Pacific (WP)

In addition, two railroads have entered bankruptcy and are being wholly or partially liquidated. The Rock Island (CRI&P) is currently being completely liquidated in the Midwest. In addition, the Milwaukee Road (CMSP&P) has abandoned its western lines and entered bankruptcy, with the hope of salvaging its midwestern core for continued operations.

As a result of these consolidations and bankruptcies, the railroad industry will be reduced from 29 independent Class 1 railroad systems in the 1970s, to less than 20 by 1985. In most regions of the U.S., shippers will have a choice of only one or two competing railroads on which to locate plants and facilities. While this is often not a problem for those commodities and areas in which truck and barge competition are effective, these consolidations represent a substantial increase in railroad market power for many shippers of bulk commodities, especially coal, at a time in which regulatory constraints are being lessened. On the other hand, the consolidations will provide a variety of benefits to the industrial coal shipper including:

- Single-line control over service and car tracing
- Potential to reduce costs through operating efficiencies
- Increase in single-line rate making, with reduced problems in and inhibitions to rate making, due to joint rate negotiations

The question that must be answered is: To what extent will the industrial coal shipper actually receive these benefits in light of the regulatory revisions of the Staggers Act? While single-line control could result in service improvements, what incentive does the railroad have to provide better service if it controls both the origin and destination? If operating costs are reduced, will rates be reduced or railroads simply pocket the benefits because the Commission now permits market-based, as opposed to cost-based, pricing? While single-line rate making will reduce negotiation problems and, in some cases, provide additional coal supply options to an industrial coal user, will the railroads hide behind the antitrust statutes to exclude competitive off-line coal suppliers subject to joint-rate negotiations?

The degree to which an industrial coal user receives the benefits of railroad consolidations will relate mainly to the shipper's ability to exercise leverage over the railroad in rate and contract negotiations. The following examples are useful in explaining the impact of these consolidations on industrial coal users.

Example 1. Southeastern Industrial with Several Plants

The industrial has four plants utilizing process steam; two burn coal. Two of the plants, one coal and one oil, are located on Railroad A and the other two on Railroad B. The firm is considering adding new coal-fired steam capacity at any one of the four plants. The firm has competitive leverage over the railroads in this instance. It can play the two railroads against one another for the best transportation deal, adding the coal-fired capacity at the plant for which the optimum deal can be negotiated.

If railroads A and B merge, however, the industrial may have difficulty negotiating competitive rates and services from the merged carrier, since it has no alternative delivery method. If the industrial could demonstrate that the merged system was "market dominant" over its coal transportation, the ICC might act to limit rate increases but only if the rates were judged unreasonable.

This is suboptimal to the industrial's ability to exercise leverage directly over rail rates or contracts and may place the industrial at a cost disadvantage versus its competitors.

Example 2. Midwestern Steel Company at a Single Location

In this example, assume that the company's only production facility is located on Railroad D, a railroad that has no access to coal on its lines. In this situation, the industrial will solicit bids for coal supplies originated by three other carriers, A, B, and C. These carriers will compete with each other to offer both the steel company the lowest delivered price per Btu of coal and to offer the terminating carrier D the best division of revenues and profits so that their routing is selected. Assume that one of the origin carriers, say A, cannot make a competitive bid because its portion of haul is too short and the resulting overhead too high to make the movement profitable. (This is called a "watershed" problem.) Hence the shipper can play-off B against C, with carrier D remaining neutral.

However, if origin carrier A and terminating carrier D are merged, the steel company will be faced with a very different situation. The watershed problem is eliminated and the movement from A to D becomes a single-line movement, with its attendant potential cost reductions and service improvements. However, carrier D will no longer be "neutral" with respect to the origin carrier, instead desiring to maximize its profits through increased control over the rates and longer length of haul. Because carrier D must concur in all rates and contracts, it now has the incentive and means to eliminate origin carriers B and C, thus eliminating competition among the coal suppliers and the railroads from B and C in favor of single-line control from A to D. The steel company may not see any of the cost savings or service improvements contemplated by the merger of D and A because it has lost its leverage over the origin coal suppliers and railroads to the merged railroad.

These are just two examples of the problems which can develop for industrial coal users as a result of the simultaneous consolidation of the railroad industry and its deregulation under the Staggers Act. Just as the choices of carriers are being reduced, the remaining railroads receive increased freedom to set rates and service rules independent of regulatory intervention. Rightly or wrongly, the balance of market power is taking a decided shift toward the railroads.

4 THE CAPACITY OF THE RAILROADS TO MEET NEW COAL SERVICE DEMANDS

As we have discussed in the two preceding sections, the changes in the railroad industry and its regulation offer both new opportunities and problems for industrial coal shippers. The railroads' bargaining position in the competition among coal suppliers, transporters, and consumers for the "economic rent" in coal markets has been enhanced by both the Staggers Act and the consolidation of the railroad industry. There are still ample opportunities available for the coal consumer to gain access to competitive transportation service, but industry will have to pay closer attention to transportation considerations in coal-purchasing decisions than has previously been the case.

Before discussing some strategic considerations in designing coal transportation movements, a few comments on the physical availability and capacity of the railroads are in order. Among the concerns expressed by the railroads in their efforts to reduce railroad regulation has been the existence of significant excess capacity in the railroad network, because the regulatory restrictions on abandonment inhibited "rationalization" of the physical plant. Figure 1 shows the distribution of traffic density over the U.S. rail network; 20 percent of the route miles carry 67 percent of the traffic. From a systems viewpoint, rail capacity is vastly in excess of demand and the reduced regulation of abandonments in the Staggers Act will undoubtedly result in a substantial reduction in light-density lines.

It can be further noted that the physical condition of the light-density lines is also the poorest and that the necessity of maintaining these lines in operable condition is a significant financial drain on the railroads. Since less than 3 percent of U.S. main-line railroad is subject to deferred maintenance, the physical ability of the railroads to respond to new traffic needs is only questionable as it relates to light-density lines.

While it is not possible to evaluate in detail the adequacy of the railroad network to handle industrial coal movements without a specific analysis of origins, destinations, and routings, it can be safely concluded that most main lines have adequate capacity and are maintained in adequate condition to handle the projected increases in industrial coal use. Problems do exist on light-density branch lines, in congested terminal areas, and with industrial spurs. Industrial coal users will have to carefully evaluate the costs of upgrading such facilities as part of their strategic analysis on coal transportation decisions. In general, however, we do not believe that industrial coal usage will be significantly constrained by the capacity of the railroads to meet new service demands.

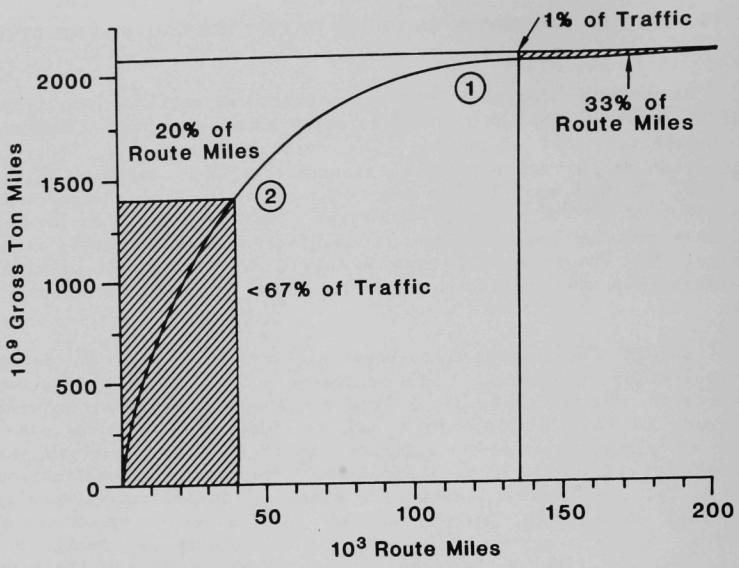

Fig. 1 Distribution of Traffic Density over the U.S. Rail Network

5 STRATEGIES FOR INDUSTRIAL COAL USERS IN THE NEW RAILROAD ENVIRONMENT

Industrial coal users and those considering coal conversions should consider a number of factors in developing a coal transportation strategy. In the paragraphs that follow, we will present a brief discussion of the major factors and their role in creating a successful industrial coal transportation strategy.

Access to Transportation - Perhaps the most important factor in any coal transportation strategy is gaining access to multiple, competitive transportation options. Such options may include direct access to several railroads, access to inland or ocean port facilities, slurry pipelines, or trucks. Included in this would be a mine-mouth siting that precludes or minimizes transportation. For industries considering new facilities, multiple transportation access should be a major criterion in siting, given that transportation costs can account for more than 75 percent of the delivered cost of coal and competition will reduce these costs. For those who plan to convert to coal at existing locations served by only one carrier, construction of additional transportation access should be considered.

Among the types of access to the destination that can improve transportation competition are the following:

- Two railroads - access directly by separate spurs or jointly via trackage rights, reciprocal switching, or a neutral delivering railroad.
- Waterway access - because barge and ocean shipping have nondiscriminatory access to waterways, access to a waterway is sufficient to assure competitive transportation alone or in combination with access to other modes.
- Slurry pipelines - many industrial users are of small size and will not be able to access even annual volume rail rates, let alone slurry pipelines. For large volume users, slurry pipelines may be an alternative, but the initial capital requirements, inherent inflexibility in operations, and questionable common-carrier status make these unlikely candidates for industrial coal transportation before 1990.
- Trucks - when short distances (100 miles or less, as a rule) from coal supplies are involved, trucks may be able to compete for industrial coal volumes and provide a competitive spur to railroads. Similarly, a railroad/truck or waterway/truck transshipment may provide a competitive alternative in cases where trucking distances are short.

Transportation Access to Coal Origins - While less effective than competition at the destination, competitive or neutral access to coal sources at the origin will increase the industry's leverage over transportation costs. By

neutral delivering railroad, we mean an independent, terminal, or switching railroad or a trunk line carrier without access to coal, who is thus indifferent as to coal source.

From a transportation viewpoint, the ideal situation for an industrial coal user would be to get direct single-line service from several railroads and their on-line coal mines or direct railroad and waterway access to both coal origins and destinations. This provides the advantages of single responsibility service and low cost while also providing the shipper with leverage to ensure competitive pricing and service.

Transportation Facilities and Equipment Investments - Another factor to consider as part of an overall coal transportation strategy is investment in transportation equipment and facilities. There are several reasons to consider direct investment by an industrial coal user:

- Expand competitive transportation options.
- Ensure existence of adequate service.
- Reduce transportation costs.

Investments that might be considered include purchase or development of a shipper-owned switching or terminal carrier, construction of unloading or transshipment facilities, ownership of railroad cars or barges, and capitalization of branch line upgrades or new spurs. As we mentioned earlier, the latter may be necessary to ensure adequate and safe service if the industry is located on such a line.

Some of these investments may be necessary and others optional, but each should be carefully evaluated to ensure that every opportunity to reduce coal transportation costs is evaluated. Industries such as steel companies, paper and wood products, and mining companies own and operate terminal railroads very successfully, providing themselves with substantial leverage over transportation costs. Ownership of rail cars can result not only in lower car charges but improved flexibility in shifting to different coal-supplying carriers.

6 CONTRACTS FOR TRANSPORTATION

As a result of the freedom to contract provided in the Staggers Act, the option to contract for rail transportation services has become another parameter in an industrial coal transportation strategy. Since many industrial coal shippers will not qualify for large volume or unit-train rates, contracting may offer an option to reduce transportation costs below single-car rates.

Of primary importance in the contracting decision is the interrelationship among coal supply, transportation, and the industrial product markets. A potential industrial shipper can apply leverage by making transportation contracts concurrently with coal supply decisions and facility and boiler designs. That is, the shipper maintains flexibility in his negotiating position with the railroad until a contract is signed. The shipper's transportation leverage is reduced once a coal supply decision is known or a boiler design is revealed. Similarly, the longevity of the market for the firm's specific industrial products will play a major role in determining if contracting is wise.

The decision to make a transportation contract is central among all of the factors in the use of coal by an industrial firm. Both the railroads and the coal shippers have been cautious in approaching contracts not only because of lack of experience and precedence in this area, but also because of the long-term commitments involved. Will the railroads be more or less competitive over time with other transportation modes, will they become more efficient, and will they build and maintain their physical plant to the required levels? Contracts can bring more certainty to an industrial coal user, but not necessarily more efficiency or lower costs.

BIBLIOGRAPHY

Baur, P.S., *Factor Transportation Planning into Plant-Siting Decisions to Minimize Fuel-Delivery Cost*, Power, *126*(2):106-108 (Feb. 1982).

Williams, E.W., *A Critique of the Staggers Rail Act of 1980*, presented at the American Economics Assn. Meetings, Washington, D.C. (Dec. 28-29, 1981).

Interstate Commerce Act, 92 Stat. 1337, 49 U.S.C.A. 10101 ff.

Interstate Commerce Commission, Ex Parte No. 320 (Sub-No. 2), Market Dominance Determinations and Consideration of Product Competition (July 8, 1981).

Richards, T., *Contract Rates -- Opportunity or Trap*, Progressive Railroading, pp. 45-47 (Aug. 1981).

Staggers Rail Act of 1980, 94 Stat. 1985, 49 U.S.C. 101 ff.

Uggen, M.W., *Railroad Contract Rates: A Working Analysis of Section 10713*, ICC Practitioners' Journal *48*(5):526-42 (July-Aug. 1981).

U.S. Department of Transportation, *Final Standards, Classification, and Designation of Lines of Class I Railroads in the United States*, Washington, D.C., Vol. 1 (Jan. 19, 1977) and Vol. 2 (June 30, 1977).